1. When a perceptron is categorizing a series of items and it makes an error, what happens according to the backpropagation algorithm?
   a. It decreases the error by moving the decision boundary toward classifying the error item correctly
   b. It starts the categorization process again from the beginning, and keeps running until by chance no errors are made and then uses that category boundary in the future
   c. It skips that item and moves on to the next item
   d. It uses all of the above strategies to correct errors
   e. It uses none of the above strategies to correct errors

2. Which of the following is true about the word superiority effect:
   a. People can see the letter “K” better in the word “WAKE” than they can in the non-word “HRKX”
   b. Words can vary in their intensity of meaning (i.e. despise versus dislike)
   c. People are faster at recognizing certain words if they have had more concrete interactions with those words
   d. People are faster at recognizing words that contain more visual symmetry
   e. All of the above

3. What does the Perceptron Convergence Theorem say?
   a. If there is a line that can perfectly separate the data into categories, the perceptron will find it in a finite number of steps.
   b. The perceptron outputs 0's and 1's based on whether the data is significant or not.
   c. The data input to the perceptron always converges onto a line.
   d. The perceptron will continue to cycle indefinitely if it finds a line to divide the data.
   e. The perceptron analyzes input by dividing data into a grid-like pattern.

4. Three-year-old Jenny says "blowed up" instead of the (correct) "blew up." This is an example of:
   a. Categorical perception
   b. Habituation
   c. Language-specific refinement
   d. Over-regularization of verbs
   e. Narrative confusion

5. Which organism discussed by Dr. Mukamel best exemplifies the power of epigenetics and why?
   a. The honeybee: despite being genetically identical to female worker bees, the queen is physiologically distinct from workers due to the consumption of royal jelly.
   b. The giraffe: its increasingly long neck evolved over generations of stretching to reach high branches and passing on this genetic disposition.
   c. Humans: humans have different hair, eye and skin colors due to epigenetic factors.
   d. Rats: the expression of different fluorescent proteins in different cells is controlled by methylation of different segments of DNA.
   e. All of the above.
6. Which of the following is true regarding cognitive control?
   a. With a lower amount of interference in an experiment, there is typically higher activity in the anterior cingulated cortex as well as the prefrontal cortex.
   b. The Go/No-Go task, which ADHD patients are impaired in, engages the working memory component of cognitive control.
   c. The anterior cingulated cortex activity increases following error trials, and greater activity in this area corresponds to bigger adjustments and better performance on subsequent trials.
   d. The anterior cingulated cortex typically exhibits a negative correlation with the prefrontal cortex: when there is greater activity in the ACC, there is less activity in the prefrontal cortex.
   e. The prefrontal cortex needs constant drive from external sensory stimuli to maintain activation.

7. Exposure with experimental tasks such as fear conditioning and the Morris maze task can lead to neuronal changes, including neuronal spine formations and synaptic pruning.
   a. True
   b. False

8. According to Dr. Hollan, which of the following properties makes computers a special technological development?
   a. They provide the first tool for exploring the workings of the human brain.
   b. Computers allow instantaneous contact with people hundreds or thousands of miles away.
   c. Computing power tends to double at an exponential rate.
   d. Computer is a “meta-medium”, allowing the creation or reproduction of other media.
   e. None of the above

9. EEG is a technique for measuring:
   a. blood oxygenation level in different parts of the brain
   b. electrical potential at the brain scalp
   c. fraction anisotropy (FA) of different kinds of tissues
   d. calcium influx during action potentials
   e. none of the above

10. What is one function of myelin?
    a. Faster conductance of electrical signals along the axon.
    b. Slower conductance of electrical signals along the dendrites.
    c. Shortening of the axon.
    d. Elongation of the axon.
    e. None of the above

11. We say someone is exhibiting ________ when he/she becomes used to a particular event or object and expresses relatively little interest toward it.
    a. introspection
    b. visual acuity
    c. habituation
    d. primes
    e. aphasia
12. At rest, a neuron has a higher concentration of _______ ions on the ________ of the neuron than on the ________ of the neuron.
   a. Chloride; inside; outside
   b. Sodium; outside; inside
   c. Potassium; outside; inside
   d. Protein; outside; inside
   e. Calcium; inside; outside

13. Dr. Neftci showed a video of some cups filling with water and then tipping. Which of the following was he trying to illustrate?
   a. A physical model of a neuron called a hydronuron
   b. Equilibrium between intracellular and extracellular concentrations of fluids
   c. A way to get silicon to behave like ion channels
   d. All of the above
   e. None of the above

14. The “connectome” of the brain refers to:
   a. The ratio of glial cells to neurons in the brain.
   b. The brain’s neuronal wiring.
   c. The genetic and epigenetic patterns in the brain.
   d. The observation of methylation of proteins in neurons.
   e. None of the above

15. Wernicke’s Aphasia is also known as ______ and Broca’s Aphasia is also known as_______
   a. Expressive Aphasia/Receptive Aphasia
   b. Receptive Aphasia/Expressive Aphasia
   c. Expressive Aphasia/Talkative Aphasia
   d. Talkative Aphasia/Receptive Aphasia
   e. None of the above

16. The following are attributes that apply to the phenomenon of marking in dance:
   a. Dancers use it to reduce risk of injury during practice by not going full out
   b. Dancers represent a full dance phrase with less effort and less detailed movements
   c. Marking is typically less physically expressive than mental simulation
   d. a and b
   e. All of the above

17. True or False: Categorical perception refers to the uniquely human ability to discriminate sound categories.
   a. True
   b. False

18. What did Professor Mukamel call the “GPS” of the brain or the structure in which place cells are located?
   a. Parietal Cortex
   b. Hippocampus
   c. Basal Ganglia
   d. Cerebellum
   e. None of the above
19. True or False: Among other things, a neural network can be trained to learn what sounds to produce in response to an input of written words.
   a. True
   b. False

20. Dr. Braver gave an example in class where we were instructed to tap the table for every letter we saw that was not an “x”, and to not tap when we see an “x.” He was trying to illustrate which of the following:
   a. The stroop task
   b. Go/no-go task
   c. Short-term item recognition
   d. Habituation
   e. None of the above

21. Which of the following is NOT a typical symptom of Wernicke's aphasia?
   a. Halting speech
   b. Difficulty in comprehension
   c. Reduced vocabulary
   d. Unawareness of garbled speech

22. Which of the following is true:
   a. computers carry out digital computations while the brain carries out analogue computations
   b. computers carry out analogue computations while the brain carries out digital computations
   c. computers and the brain both carry out digital computations
   d. computers and the brain both carry out analogue computations
   e. none of the above

23. True or False: The homunculus is a cortical representation of the body, in which the size of representation corresponds to actual body size.
   a. True
   b. False

24. When a neuron’s membrane potential increases (becomes less negative), it is known as:
   a. Hyperpolarization
   b. Depolarization
   c. Downregulation
   d. Myelination
   e. Quantification

25. Mirror Neuron are a key aspect of human cognitive ability. What do they do?
   a. Activate while observing others performing a task in the same as if the observer was performing the task, with the exception of motor area activation.
   b. Cue the brain via motor area activation to imitate observed actions in order to practice motor sequences.
   c. Aid in memory of complex motor sequences by encoding mirrored versions of the sequence, helping to reproduce the sequence in many different orientations.
   d. Create spatial maps of visual imagery across a plane of symmetry to help navigate the environment.
   e. Integrate different modalities for increased creativity.
26. What are the two forces that allow for action potentials to occur?
   a. Concentration gradient and electrostatic pressure
   b. Concentration gradient and driving force
   c. Driving force and electrostatic pressure
   d. Normal force and electrostatic pressure
   e. None of the above

27. In Dr. Kirsh’s study of the effectiveness of marking, full practice, and mental simulation among dancers, which of the following did he find?
   a. Marking, full practice, and mental simulation were equally effective.
   b. Marking and full practice were equally effective, but mental simulation was not as effective.
   c. Mental simulation and full practice were equally effective, but marking was not effective at all.
   d. Full practice was most effective, followed by marking, and then mental simulation.
   e. Marking was most effective, followed by full practice, and then mental simulation.

28. The fact that the average person can rapidly identify who the person is from a face image, but cannot identify the bird species from a bird image, demonstrates that:
   a. humans have visual perceptual expertise for bird species
   b. humans have visual perceptual expertise for faces and not for birds
   c. humans have visual perceptual expertise for animated objects
   d. humans have visual perceptual expertise for birds and not for faces
   e. all of the above

29. Which of the following terms best describes the procedure for adjusting a line representing a category boundary if a data point is on the wrong side of the line?
   a. Learning machine.
   b. Error correction procedure.
   c. Random dot paradigm.
   d. Unit rotation.
   e. Line rotation procedure.

30. Which of the following is INCORRECT about the membrane potential?
   a. The resting membrane for most neurons is approximately -70 mV.
   b. The extracellular medium has a higher concentration of sodium compared with the intercellular space.
   c. The extracellular membrane has a higher concentration of potassium compared with the intercellular space.
   d. The membrane potential must pass a certain threshold in order to activate an action potential.
   e. The voltage gated sodium channel are more likely to open when the cell’s membrane potential is higher.

31. What does the success of neural networks in learning different tasks suggest about human cognitive development?
   a. Babies are hard-wired to fear spiders
   b. Babies are born with intricate and detailed innate knowledge about human languages
   c. Babies are born with an internal representation of faces
   d. Babies have all the cognitive skills of adults; they primarily lack motor coordination
   e. None of the above
32. What properties contribute to movement of ions across a cell membrane?
   a. Diffusion
   b. Selectively permeability
   c. Electrostatic pressure
   d. Kinetic energy
   e. a, b, and c

33. The McGurk effect illustrates that:
   a. The brain readily integrates multiple sensory modalities to perceive the external environment.
   b. Brains are very malleable and can accommodate for damage.
   c. The FOXP2 accounts for language deficiencies
   d. a and b
   e. None of the above

34. Character recognition is hard (for machines) because:
   a. characters are man-made as opposed to natural objects
   b. there is a lot of variability in the way each character is written
   c. humans have purpose-built character detectors; machines do not
   d. all of the above
   e. none of the above

35. An artificial neural network is a model characterized by
   a. "grandmother" cells
   b. distributed representation
   c. parallel processing
   d. readily interpretable computations
   e. b and c

36. DNA is coiled into a _______, which wraps around _______ and is altered by the presence or absence of _______
   a. Double helix; methyl groups; histones
   b. Histone; methyl groups; double helices
   c. Methyl group; a double helix; histones
   d. Histone; a double helix; methyl groups
   e. Double helix; histones; methyl groups

37. True or False: One goal of neurimorphic engineering is to exploit the known properties of biological systems to design and implement efficient devices for engineering applications.
   a. True
   b. False

38. Broca’s Aphasic patients:
   a. Show no comprehension of meaning
   b. Speak rapidly with made-up words
   c. Are unaware of their condition
   d. Mainly rely on nouns and pronouns to express thoughts
   e. All of the above
39. Which of the following is INCORRECT about saltatory conduction?
   a. Myelin sheath helps the long-distance communication of action potentials along an axon.
   b. Nodes of Ranvier are gaps between myelin sheaths where the action potential may regenerate.
   c. Myelin sheaths both protect the axon and allows for electrical insulation.
   d. Saltatory conduction is the leaping of the action potential via myelin sheaths to increase conduction distance and velocity.
   e. All are true

40. What are the three functional units of the neuron listed in the order of the direction of most common electrical flow?
   a. Cell Body (Soma), Axon, Dendrites
   b. Synapse, Action Potential, Cell Body (Soma)
   c. Dendrites, Cell Body (Soma), Axon
   d. Axon, Cell Body (Soma), Dendrites

41. Which of the following cells selectively respond when the animal is facing a particular direction relative to the environment?
   a. Place Cells
   b. Grid Cells
   c. Head Direction Cells
   d. Parietal Cells
   e. All of the above

42. How does the prefrontal cortex implement control?
   a. It actively maintains behavioral goals
   b. It biases attention
   c. Its activities are coupled with those of the anterior cingulated cortex
   d. All of the above
   e. None of the above

43. Which of the following is true?
   a. Effective connectivity refers to a reverse relationship between different brain regions and functional connectivity refers to a causal relationship
   b. Effective connectivity refers to a causal relationship between different brain regions and functional connectivity refers to a correlative relationship.
   c. Effective connectivity refers to a causal relationship between different brain regions and functional connectivity refers to a reverse relationship.
   d. Effective connectivity refers to a reverse relationship between different brain regions and functional connectivity refers to an indirect relationship.
   e. Effective connectivity refers to a correlative relationship between different brain regions and functional connectivity refers to a causal relationship.

44. True or False: Activity-Enriched Computing can restore the context of interrupted activities and help humans recall more details of the activity.
   a. True
   b. False
45. Spatial summation is
   a. The summation of both pre and post synaptic neurons
   b. A way to measure a neuron’s firing rate
   c. The summation of inputs from multiple presynaptic units along the dendritic tree.
   d. The summation of multiple inputs from one presynaptic neuron over time
   e. None of the above

46. The Human Connectome Project _____.
   a. is a graphical interface that uses compiled data about the structure of the brain
   b. is the first large-scale attempt to collect and share data about the structure and function of the brain
   c. uses advanced neuroimaging methods to collect data from healthy individuals
   d. is designed to obtain and share material for educational purposes
   e. all of the above

47. Which of the following is appropriate for applying probabilistic inference?
   a. Tradeoff between prior and evidence.
   b. Integrating multiple cues
   c. Explaining away
   d. Discounting and marginalization
   e. All of the above

48. Diffusion tensor imaging is a technique for:
   a. Imaging brain response to different sensory stimuli
   b. Imaging the diffusion of molecules, for example water
   c. Imaging the size and direction of myelinated white matter tracts
   d. b and c
   e. All of the above

49. According to Dr. Hollan, as computing technology has advanced, we have seen a trend toward _______ of the computer, as well as increasing _______ between the physical and the digital elements in our lives.
   a. Fractionation; separation
   b. Integration; separation
   c. Fractionation; permeability
   d. Integration; permeability
   e. None of the above

50. True or False. As a non-native English speaker, the earlier you learn English as a second language, the more you will behave like an English speaker in spatial and temporal cognition tasks that are subtly influenced by one’s native language.
   a. True
   b. False

51. True or False: The backpropagation algorithm is a way to do credit assignment: attributing classification error to different weights in a neural network according to how much they each contributed to the output error.
   a. True
   b. False
52. Neurons differ by their:
   a. location
   b. connections
   c. electrical and chemical responses
   d. all of the above
   e. none of the above

53. Which of the following is not considered a part of Cox's axioms of probability?
   a. Degrees of belief are represented by real numbers
   b. Self-consistency
   c. Marginalization and discounting
   d. Qualitative correspondence with common sense
   e. Integrating from multiple cues

54. The Sapir-Whorf Hypthesis claims that:
   a. The language you immerse yourself in helps to organize and shape your conception of the world.
   b. The brain works in a modular manner, with languages working in an isolated fashion.
   c. Language can affect how we perceive and interact with the world.
   d. Our cognition is not affected by language per se, but by the environment we grow up in
   e. a and c

55. Cross-correlation maps can provide information about
   a. Statistical association between brain areas
   b. Causal relationships of neural activity among cells
   c. Directionality of fiber tracts
   d. Anatomical structures of neurons
   e. The density of dendritic spines

56. As we move up the vision pathway, from the retina to parietal and temporal cortex, we see
   a. Areas responsive to features of increasing complexity
   b. Areas responsive to features of decreasing complexity
   c. Areas that are responsive to features of a constant complexity.
   d. Areas in the vision pathway do not respond to individual features

57. What does FA measure?
   a. The volume of myelinated white matter
   b. The direction of fiber projection
   c. The volume of gray matter
   d. The accuracy of word identification
   e. The thickness of cortex

58. Referring to an object's location as being "due north" is an example of a(n):
   a. Relative frame of reference
   b. Centric frame of reference
   c. Absolute frame of reference
   d. Intrinsic frame of reference
   e. None of the above
59. What are the consequences of evolving forms of computing devices?
   a. Inexpensive digital recording devices, sensors, and storage facilities are revolutionizing scientific study.
   b. The boundary between digital and physical world is becoming permeable.
   c. Computers provide a new kind of stuff out of which to fashion dynamic, interactive systems that can assist thoughts.
   d. Capturing real-world activity in fine detail is becoming possible
   e. All of the above.

60. Which of the following is an advantage of employing a model to do research in cognitive science according to Dr. Cottrell?
   a. Models can be manipulated in ways people cannot
   b. Models force honesty about theories and test their plausibility
   c. Models can generate unexpected results, which in turn may fuel discovery
   d. Models can be selectively altered to mimic damage or other conditions
   e. All of the above

61. What is NOT a challenge for neuromorphic computation?
   a. Fabrication variability and operating noise
   b. Voltages used to set neuron parameters do not directly correspond to those of the mathematical description of the neuron
   c. All computations have to synchronize with a global clock
   d. Only a small number of state variables can be observed
   e. Internal parameters cannot be set with arbitrary precision (often just on or off)

62. Which of the following is NOT a cognitive neuromorphic engineering?
   a. Only a small number of state variables can be observed
   b. The voltages cannot be set with arbitrary precision
   c. Can only tell where the spike is coming from, but not what connection it makes
   d. Subject to fabrication variability and noise
   e. Voltages used to set neuron parameters do not directly correspond to those of the mathematical description of the neuron.

63. While head direction cells, place cells, and grid cells all help orient the self in an environment, which of these cells is sensitive to rotation of the environment?
   a. Head direction cells
   b. Place cells
   c. Grid cells
   d. None of the above
   e. All of the above

64. Brain morphometry is a way to:
   a. Measure neural anatomy, enabling the tracking of structural changes over time.
   b. Image brain function and metabolism with great temporal resolution.
   c. Image brain function and metabolism with great spatial resolution.
   d. Measure cortical oscillations from the scalp as they change.
   e. None of the above.
65. What is an example of activity history?
   a. A trail in the forest
   b. Edit wear of a book
   c. A note in the textbook
   d. a and b
   e. All of the above

66. What is a useful property of the perceptron?
   a. the perceptron can learn to "program itself"
   b. the perceptron can produce arbitrarily shaped boundaries that separate different classes of objects
   c. the perceptron can solve XOR problems
   d. the perceptron can be built via different media: chemical circuits, electrical circuits, digital computers
   e. a & d

67. Which of the following apparently decreases during early childhood?
   a. Cortical area
   b. Cortical volume
   c. Cortical thickness
   d. All of the above
   e. None of the above

68. Which of the following describes an intrinsic frame of reference?
   a. Using salient environmental cues to describe space dedicated to a given location
   b. Describing locations based on the viewer’s point of view.
   c. Describing locations of other objects based on an object’s point of view.
   d. Using directions such as North, East, South and West to describe location of objects.
   e. None of the above

69. Oligodendrocytes are:
   a. Cells that help myelinate axon tracts to form white matter in the brain
   b. Cells that communicate via action potentials
   c. Cells that extracellular proteins bind to
   d. Cells that aid in the growth of gray matter in the brain
   e. None of the above

70. According to Bayes’ Theorem, the posterior probability of a hypothesis will be higher if:
   a. the hypothesis is has higher prior probability
   b. the data is more likely given the hypothesis
   c. other hypotheses are also likely given the data
   d. a and b
   e. All of the above

71. True or False: Dr. Cottrell showed that a neural network that has been extensively trained to recognize faces has a HARDER time learning to recognize other objects (such as made-up ones like greebles) than a "naive" neural network that has not been trained on any task.
   a. True
   b. False
72. "Shotgun sequencing" refers to the process of:
   a. Determining the functional connectivity of a neural network by beginning from many separate neurons at once, then filling in their connections as data is accrued.
   b. Sequencing an organism’s genome by slicing the full segment into many, much shorter ones, then sequencing each of the shorter strands to piece together the complete picture.
   c. Recording the location, connections and signals given out by neurons in one organism, then generalizing the overall pattern to a group of neurons in another organism.
   d. Staining neurons at random within the nervous system and using them to establish a connectome for the organism.
   e. None of the above.

73. Which of the following does NOT contribute to an egocentric frame of reference?
   a. Somatosensation
   b. Vision
   c. Proprioception
   d. Exteroception
   e. Vestibular sensation

74. Which of the following brain areas is known to integrate somatosensory and visual information in representing peripersonal space?
   a. Hippocampus.
   b. Prefrontal cortex.
   c. Superior temporal sulcus.
   d. Area VIP in parietal cortex.
   e. Area V1 in occipital cortex.

75. The Stroop task:
   a. is more difficult on incongruent trials.
   b. is more difficult on congruent trials
   c. is equally difficult on congruent and incongruent trials.
   d. does not involve congruence or incongruence.
   e. is more difficult with more rarely used colors, such as indigo and cyan.

76. What area in the brain is activated when you see a face or another object that you are an expert at identifying?
   a. Hippocampal Familiarity Area
   b. Orbitofrontal Emotion Area
   c. Ventral Intra Partial Area
   d. Fusiform Face Area

77. Which of the following factors affect brain morphology?
   a. Experience
   b. Genetics
   c. Biological development
   d. Environment
   e. All of the above
78. What is the function of the sodium-potassium pump on the membrane of a neuron?
   a. To pump sodium and potassium out of the cell to allow for other ions to flow into the cell.
   b. To pump sodium and potassium into the cell to keep a constant membrane potential at all times.
   c. To pump potassium into the cell and sodium out of the cell following an action potential.
   d. To pump potassium out of the cell and sodium into the cell, counteracting the forces of electrostatic pressure and diffusion when the cell is at equilibrium.
   e. None of the above.

79. Choose the correct labels for the brain’s lobes.

![Brain Image]

   a. A = Temporal; B = Occipital; C = Coronal; D = Frontal
   b. A = Frontal; B = Parietal; C = Occipital; D = Temporal
   c. A = Coronal; B = Occipital; C = Temporal; D = Frontal
   d. A = Frontal; B = Parietal; C = Temporal; D = Occipital
   e. A = Temporal; B = Parietal; C = Frontal; D = Occipital

80. True or False: The anterior cingulate cortex is associated with the generation of the error-related negativity (ERN) signal.
   a. True
   b. False

81. Which of the following did Dr. Hollan mention as a possibility with the advent of more sophisticated computing technology?
   a. Remote surgeries where the surgeon is in another location performing surgery through a motorized computer
   b. Remote communication
   c. Collection of data in a much greater level of detail
   d. All of the above
   e. None of the above

82. Across individuals, reward sensitivity score is correlated with:
   a. greater increase in brain activation during a cognitive control task in a high-incentive context, as compared to a low-incentive context
   b. greater facilitation of reaction time in a high-incentive context than a low-incentive context
   c. greater ERN signal
   d. a & b
   e. none of the above
83. True or False: The Fusiform Face Area (FFA) has been shown to selectively respond to only human faces.
   a. True
   b. False

84. Dr. Braver showed us an example of a task in class where some words were displayed on a screen, followed by a phase where one word was displayed and we had to determine if we had seen that word in the previous batch. He was trying to illustrate:
   a. the Stroop task
   b. the Go/no-go task
   c. Short-term item recognition
   d. Habituation
   e. None of the above

85. In German, “key” is masculine; in Spanish, “key” is feminine. When asked to describe a key, German speakers would be more likely to describe it as _____ while Spanish speakers would be more likely to describe it as _____.
   a. strong / elegant.
   b. useless / useful.
   c. tiny / big.
   d. sharp / dangerous.
   e. smooth / jagged

86. Which of the following is true of neuromorphic engineering?
   a. It is a discipline that aims to understand the computational properties of biological neural systems using analog circuits
   b. It is a discipline that aims to exploit the known properties of biological systems to design and implement efficient devices for engineering applications
   c. It is a discipline whose focus is to digitally model neurons and attractor networks
   d. All of the above
   e. a and b only

87. Which of the following statements about categorical perception is FALSE?
   a. It is demonstrated in infants young as 4 months of age
   b. It is demonstrated in adults
   c. Listeners are much better at discriminating stimuli within a perceptual category than between categories
   d. Listeners are much better at discriminating stimuli that belong to different perceptual categories than the same category
   e. All of the above are correct

88. What have studies of the FOXp2 gene shown?
   a. It is uniquely found in humans.
   b. It affects a generic brain function that is used for language.
   c. It is the gene primarily responsible for human language.
   d. People who do not have the normal version of the gene become deaf.
   e. More than one of these choices are correct.
89. Which of these statements is true about language?
   a. Language is an innate biological process that is controlled by the FOXp2 gene.
   b. Chimps can be easily and rapidly trained to use language.
   c. Language is an ability located selectively in Broca's area.
   d. Language recruits many other cognitive abilities.
   e. Without language there would be no inter-personal communication.

90. True or False: The direction of writing in one's native language affects the sequential allocation of visual attention in a non-linguistic task.
   a. True
   b. False

91. Fiber tracts in the brain ____________.
   a. are also known as white matter.
   b. are responsible for communication among different brain regions.
   c. develop at different rates in different parts of the brain.
   d. All of the above.
   e. None of the above.

92. The amount of DNA methylation in neurons:
   a. decreases over one's lifetime
   b. remains steady over one's lifetime
   c. increases over one's lifetime
   d. randomly fluctuates
   e. none of the above

93. Why are computers special, as a form of media?
   a. Computers can mimic and modify existing media.
   b. Computers are a “meta”-media, capable of instantiating new media.
   c. Computers can create models that represent the physical world.
   d. All of the above

94. Based on Prof. Sarah Creel’s lecture, which of these is NOT typical for a three year old?
   a. Developing new words for new concepts.
   b. Making phoneme errors.
   c. Knowing some social phrases.
   d. Over-regularizing verbs.
   e. None of the above.

95. Compared to the brain, digital processors use
   a. less storage space to carry out the same computations
   b. more energy to carry out computations
   c. less energy to carry out computations
   d. more storage space
   e. None of the above
96. According to Dr. Hollan, new human-computer interaction tools such as ChronoViz and attribute-mapped scrollbars are most helpful scientific research in which sense?
   a. Aiding the analysis of large amounts of data for patterns of interactions.
   b. Creating a computer model for interaction between humans in a clinical setting.
   c. Imaging and graphing event-related potential data drawn from the brain while it performs tasks.
   d. Endowing artificial intelligence systems with a semblance of human flexibility and robustness in the face of high uncertainty.
   e. Facilitating the creation of “smart” workspaces and integrated digital/physical interactivity.

97. True or False: Implementation of cognitive functions in neuromorphic engineering medium is challenging due to the fact that most common algorithms proposed for solving cognitive tasks are incompatible with neuromorphic circuits.
   a. True
   b. False

98. Prof. Seana Coulson showed an image of a humanoid cartoon with extremely large lips and hands during her presentation. Which of the following points did she make about this image?
   a. In the cortical representation of the body, all body parts are represented in proportion to their physical size.
   b. In the cortical representation of the body, some body parts are overrepresented relative to others.
   c. Many parts of the brain such as somatosensory cortex are specialized for particular tasks.
   d. Language is lateralized to the left hemisphere.
   e. Sensation of the body and motor control are lateralized to the right hemisphere.

99. According to Dr. Mukamel, Purkinje cells:
   a. fire few action potentials during anesthesia or quiet rest, and many more during movement
   b. fire the most while the animal is under anesthesia, but are relatively quiescent during movement states
   c. were first optically recorded by Ramon y Cajal
   d. Both a and c
   e. None of the above

100. The human brain relies on ______ processes and is ______ throughout life, while digital processors rely on ______ processes and are ______ after fabrication.
    a. deterministic; plastic; deterministic; frozen
    b. stochastic; frozen; deterministic; plastic
    c. deterministic; plastic; stochastic; frozen
    d. stochastic; plastic; deterministic; frozen
    e. deterministic; frozen; stochastic; plastic